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ABSTRACT

Presented is a 30-item observational instrument to be used for the evaluation and description of preservice or inservice science teaching in the elementary school. Sections of the instrument include (1) use of intellectual development stages, (2) performance objectives, (3) lesson planning skills, (4) instruction sequencing, (5) question asking skills, (6) learning-teaching strategies, and (7) evaluation techniques. (CS)

REVISED FORM

MICROTEACHING SKILLS IN SCIENCE CHECKLIST:

An Observational Instrument to be Used for Evaluation and Description of Science Teaching in the Elementary School

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REVISED FORM

MICROTEACHING SKILLS IN SCIENCE CHECKLIST: An Observational Instrument to be Used for Evaluation and Description of Behaviors Involved in the Teaching of Science

The Microteaching Skills in Science Checklist is recommended at an early stage in preservice or inservice education. Use of this instrument could include activities such as introduction to the instrument and evaluation in teaching, rating of model lessons, rating peers, using taped lesson segments for self-rating and peer or supervisory rating with feedback.

The units, A-H, form a generalized view of teacher behaviors in teaching science in a small or large group setting. The major emphasis is on description or evaluation of instructional planning, instruction and physical classroom management. The topic of each unit is defined by the individual items included. A Summary Sheet at the end of the instrument provides a format for evaluation or analysis of the teaching behaviors in a lesson or an entire teaching cycle.

This instrument is to be used with one complete science lesson or a short science unit. Analysis must involve complete lesson plans and observation of lesson(s) or tapes of lesson(s) and, if possible, student materials. Each item is marked for those behaviors observed. A blank indicates not enough information was available for behaviors to be rated. Items are marked on a five point scale, A through E.

(a) indicates not observed or not present
(b) important elements missing or seen occasionally
(c) some important elements present or sometimes
(d) many elements present or often
(e) all important elements present or always.

A. Use of Information Concerning Intellectual Development

1. At some time student's level of intellectual development was tested or sampled.
2. Lesson plan objectives and evaluation reflect the types of thought processes which students at this level can typically demonstrate.
3. Group or class instruction activities demonstrate application of the types of thought processes which students at this level can typically demonstrate.

B. Lesson (and unit) Objectives

4. Objectives clearly described the instructional goals of lesson (e.g., content, skill, attitude) which the student should be able to demonstrate at the end of the learning cycle.
5. Objectives contain behavioral terms which can be measured.
6. Objectives contain an acceptance level statement which makes clear just how well the student must perform the described behavior at the end of the learning cycle.

C. Lesson Planning Skills

7. Objectives, lesson activities and evaluation are free from misleading information, inaccuracy, pseudo-scientific description and trivial content.
8. A variety of levels are used in objectives including cognitive, affective, inquiry skill (psychomotor) areas.
9. Instructional activities are clearly stated which are appropriate in helping students acquire the desired behaviors.
10. Objectives, pre-appraisal, learning activities and evaluation are related as a whole and express an appropriate learning cycle.

D. Instructional Sequencing

11. Necessary prerequisite and related skills are addressed in the lesson plan.
12. Lesson set involves assessing/diagnosing strategies which identify student performance which needs to be improved or extended.
13. Skills and behaviors developed in lesson set are ordered according to complexity.

E. Question Asking Skills (teacher's responses to students observed during lesson)

14. Closed questions are asked with emphasis on convergent thinking rather than cognitive memory.
15. An appropriate balance exists between closed, open, managerial and rhetorical questions for the type of instructional strategy students were involved in.
16. Students are given sufficient wait-time to respond to questions (greater than 1.5 sec. for convergent thinking questions).
17. Questions are encouraged through teacher behaviors such as asking students to expand or answer, encouraging students to react to each others questions, student responses used by teacher in structuring further inquiry, and such positive reinforcement techniques as non-verbal cues.

F. Teacher Behavior (observed during lesson)

18. Teacher behaviors encourage and guide inquiry learning behaviors in students throughout the lesson. This mode of student learning involves behaviors where inconsistent observations, regularities in perceptions (data) or problems are investigated through collecting and processing information.
19. Teaching behaviors express a perception about how students learn including repetition through a variety of activities, use of concrete materials and multimedia, and teach in terms of reasonableness of students own experience.
20. Completed instruction matches the lesson objectives.
21. Instructional emphasis is on creativity of students using techniques such as increased permissiveness instudent investigations, individuals or groups doing different tasks and self pacing assignments.
22. Lesson materials have been worked through and set up prior to use in the lesson so that they are employed with a minimum of confusion.

G. Student Behavior (observed during lesson)

23. Student behaviors include exploring, pondering, or messing around rather than being directed immediately to a conclusion.
24. Students are actively involved (either physically or mentally responsive) for clearly defined purposes rather than just teacher alone or a few students. This includes being free to discuss, interchange and share data, ideas and/or interpretations.
25. Students identify and state problem to be investigated.
26. Students initiate and implement their own means and methods for problems.
27. Students analyze data/ideas to form their own interpretations.

H. Evaluation Techniques

28. Each objective is adequately evaluated using an appropriate evaluation scheme.
29. A record is kept so that student progress can be identified.
30. The evaluation scheme and record of progress appropriately use acceptance level criteria of objectives.

MICROTEACHING SKILLS IN SCIENCE CHECKLIST

Dennis W. Sunal

Summary of Results

Five Point Scale was used (1--5) with minimum criteria set at _____.

Name _____

_____ A. Evaluation of use of Intellectual Development Stages

_____ B. Evaluation of Performance Objectives

_____ C. Evaluation of Lesson Planning Skills

_____ D. Evaluation of Instruction Sequencing

_____ E. Evaluation of Question Asking Skills

_____ F. Evaluation of Teacher Behaviors in Learning-Teaching Strategies

_____ G. Evaluation of Student Behaviors in Learning-Teaching Strategies

_____ H. Evaluation of Evaluation Techniques

_____ TOTAL

_____ Overall rating of Instructional Planning from above categories A - D, H

_____ Overall rating of teaching in lesson set from above categories E - G